In the *Aphrodita aculeata*, the organs of respiration differ so much from other animals of that tribe, that the author enters more minutely into the peculiarities of their structure. There are thirty-two openings between its tufts of bristles on each side, which lead to one large cavity on the back, into which project two rows of globular cells that communicate with the viscera, the use of which may admit of some doubt.

In the Leech, there are sixteen external orifices on each side under the surface of the belly, communicating with an equal number of distinct globular cells.

With respect to the respiration of the Lamprey, the author observes, that it naturally differs from that of fishes in general; for whilst they are attached by means of their mouths, the respiration could not then be carried on by means of that organ. A portion of the respired water may, however, be occasionally received into the œsophagus by a tube, with which all the bags communicate, and thence may pass into the stomach.

In the animal from the South Seas, which has no cartilaginous thorax, the respiration must be performed by the elasticity of the bags themselves.

In the Myxine, the author conceives that the water received by the two external openings is carried wholly into the œsophagus, and is then thrown out by an orifice that opens externally below those before described.

In the Aphrodita and Leech, the same openings which receive, also emit the respired water; and since in the latter the pressure of the bags is affected by the muscles of the body, their respiration must vary according to the degree of bodily exertion.

On the Mode of Generation of the Lamprey and Myxine. *By Sir* Everard Home, *Bart. V.P.R.S.* Read June 15, 1815. [*Phil. Trans.* 1815, *p.* 265.]

The present may be regarded as an addition to those reasons which the author lately gave for placing the Lamprey and Myxine in a rank intermediate between fishes and vermes; for instead of having distinct sexes, as is the case in perfect fish, Sir Everard Home observes that they are hermaphrodite.

He finds that the organs, which have been hitherto taken for kidneys in supposed females, are in reality testicles, and that the supposed males are really fish without spawn, in consequence of their not breeding two seasons together.